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PATENT

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UTILITY APPLICATION AND APPLICATION FEE TRANSMITTAL (1.53(b))

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Sir:

Transmitted herewith for filing is the patent application of

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WIRELESS MULTIMEDIA PLAYER

Enclosed are:

[X] 16 page(s) of specification, 1 page(s) of Abstract, 11 page(s) of claims 1-62.

[X] 2 sheets of drawing [X] formal [] informal

[X] 4 page(s) of Declaration and Power of Attorney

- [] Unsigned
- [X] Newly Executed
- [] Copy from prior application

[] Deletion of inventors including Signed Statement under 37 C.F.R. § 1.63(d)(2)

[] Incorporation by Reference: The entire disclosure of the prior application, from which a copy of the combined declaration and power of attorney is supplied herein, is considered as being part of the disclosure of the accompanying application and is incorporated herein by reference.

[] Microfiche Computer Program (Appendix)

[] _____ page(s) of Sequence Listing

- [] computer readable disk containing Sequence Listing
- [] Statement under 37 C.F.R. § 1.821(f) that computer and paper copies of the Sequence Listing are the same

[] Claim for Priority

[] Certified copy of Priority Document.

- ☐ English translation documents
- ☒ Information Disclosure Statement
- ☒ Copy of 11 cited references
- ☒ PTO-1449.
- ☐ Preliminary Amendment
- ☒ Return receipt postcard (MPEP 503)
- ☒ Assignment Papers (assignment cover sheet and assignment documents)
- ☒ A check in the amount of \$40.00 for recording the Assignment.
- ☐ Assignment papers filed in parent application Serial No. _____.
- ☐ Certification of chain of title pursuant to 37 C.F.R. § 3.73(b).
- ☐ This is a ☐ continuation ☐ divisional ☐ continuation-in-part (C-I-P) of prior application serial no. _____.
- ☐ Cancel in this application original claims _____ of the parent application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ A preliminary Amendment is enclosed. (Claims added by this Amendment have been properly numbered consecutively beginning with the number following the highest numbered original claim in the prior application.
- ☐ The status of the parent application is as follows:
- ☐ A Petition For Extension of Time and a Fee therefor has been or is being filed in the parent application to extend the term for action in the parent application until _____.
- ☐ A copy of the Petition for Extension of Time in the co-pending parent application is attached.
- ☐ No Petition For Extension of Time and Fee therefor are necessary in the co-pending parent application.
- ☐ Please abandon the parent application at a time while the parent application is pending or at a time when the petition for extension of time in that application is granted and while this application is pending has been granted a filing date, so as to make this application co-pending.
- ☐ Transfer the drawing(s) from the patent application to this application.
- ☐ Amend the specification by inserting before the first line the sentence:
This is a ☐ continuation ☐ divisional ☐ continuation-in-part of co-pending application Serial No. _____
_____ filed _____.

I. CALCULATION OF APPLICATION FEE (For Other Than A Small Entity)

| | Number Filed | | Number Extra | Rate | Basic Fee |
|---------------------------|--|------|--------------|----------|---|
| Total Claims | 62 | -20= | 42 | x\$18.00 | \$756.00 |
| Independent Claims | 3 | - 3= | 0 | x\$78.00 | \$ 0 |
| Multiple Dependent Claims | <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | | | | Additional Fee = \$260.00 Add'l Fee = NONE |

Total: \$ 1,516.00

- ☐ A statement claiming small entity status is attached or has been filed in the above-identified parent application and its benefit under 37 C.F.R. § 1.28(a) is hereby claimed. Reduced fees under 37 C.F.R. § 1.9(F) (50% of total) paid herewith \$ _____.
- ☐ A check in the amount of \$ _____ in payment of the application filing fees is attached.
- ☒ Charge Fee(s) to Deposit Account No. 12-2325. Order No. GALENSKY 5-2. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.
- ☒ The Assistant Commissioner is hereby authorized to charge any additional fees which may be required for filing this application, or credit any overpayment to Deposit Account No. 12-2325, Order No. GALENSKY 5-2. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,

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GALENSKY 5-2

**UNITED STATES PATENT APPLICATION
FOR
WIRELESS MULTIMEDIA PLAYER**

**ON BEHALF OF
DUANE GALENSKY
AND
ANDREW T. ZIDEL**

TITLE OF THE INVENTION**WIRELESS MULTIMEDIA PLAYER****BACKGROUND OF THE INVENTION****1. Field of the Invention**

The present invention relates generally to the field of multimedia communications and, more particularly, to a method and device for streaming and/or storing high quality, real time multimedia information over a wireless telecommunications network.

2. Description of the Related Art

In recent years, the availability of multimedia information (*e.g.*, audio, video, data, *etc.*) to consumers has grown tremendously. Currently, with the popularity of the Internet, high quality, digital multimedia information can readily be obtained by a user of a personal computer hard wired to a multimedia server over the Internet.

One common example is the transmission and downloading of digital audio data files (*e.g.*, music) from a multimedia server connected to a user's computer over the Internet. The user is able to select desired audio files from a list of such files stored in or otherwise accessible by the multimedia server. To ensure high quality and minimal degradation of the original audio source, such digital audio files are typically encoded and compressed in a file format, such as MPEG, audio layer 3 ("MP3"). Software stored on the user's computer (*e.g.*, MP3 player) enables the user to play such downloaded digital audio data files by opening, decoding and decompressing the

1 audio file at the user's computer.

2 In addition to downloading and storing such digital audio files to a
3 user's computer over the Internet, it is also known to stream the audio data file to the
4 user's computer from the multimedia server over the Internet without otherwise
5 downloading or permanently storing the audio file in the user's computer. Streaming
6 of the audio data file allows the user to decode, decompress and play the audio file
7 almost immediately without waiting for the complete audio data file to first be
8 downloaded to the user's computer.

9 In today's increasingly mobile society, it is desirable for a user to
10 access and play high quality multimedia files using a portable device that can be
11 carried by the user. Existing portable devices play MP3 audio data files that have
12 previously been downloaded to the user's computer and then downloaded from the
13 computer to the portable device over a cable connection (*e.g.*, through a serial port on
14 the computer). These existing devices utilize the user's computer as an intermediate
15 connection between the portable device and the multimedia server to ultimately store
16 MP3 audio files on the portable device. A disadvantage of such existing devices is
17 that the user must select the particular audio files to be downloaded to the portable
18 device, and arrange to download and store such files in the device prior to using the
19 portable device. Furthermore, while advances have been made on the available
20 memory in such portable devices, the number of audio files that can be downloaded
21 and stored in the portable device continue to be limited by the memory associated with
22 the device.

1 It would be advantageous to have a portable device capable of playing
2 multimedia files, such as high quality, digital audio files, in real time without first
3 having to download the preselected files from the user's computer for ultimate transfer
4 and storage in the portable device prior to playing. It would also be advantageous for
5 the user to access such files in the multimedia server without using the user's computer
6 as an intermediate connection to the multimedia server. To avoid the entertainment
7 industry's concerns over unauthorized reproduction of such copyrighted multimedia
8 files, it would be desirable for the portable device to be capable of playing the
9 multimedia file without storing the multimedia file in the device's memory for
10 subsequent use.

11 **SUMMARY OF THE INVENTION**

12 The foregoing and other objects and advantages are achieved in
13 accordance with the present invention through the provision of a portable device that
14 receives and plays streamed multimedia files over a wireless network from a
15 multimedia server.

16 In accordance with the present invention, a system, method and
17 wireless device are provided for receiving and playing multimedia files streamed from
18 a multimedia server over a wireless telecommunications network. A desired
19 multimedia file is selected from one or more multimedia files stored in the multimedia
20 server, which server is operatively connected to the wireless telecommunications
21 network. Successive blocks of data from the desired multimedia file are streamed over
22 the wireless telecommunications network in a digitized and compressed format and

1 received by the wireless telecommunications device. The received blocks of data from
2 the streamed multimedia file are temporarily stored in a buffer in the wireless device,
3 decoded and decompressed, and successively played through an audio and/or video
4 output in the wireless device.

5 In accordance with a preferred aspect of the present invention, the
6 wireless device receives the blocks of data over the wireless telecommunications
7 network at a first transmission rate until a minimum threshold level of data is stored in
8 the buffer and at a second transmission rate after the minimum threshold level of data
9 is stored in the buffer, the first transmission rate being higher than the second
10 transmission rate when at least the minimum threshold level of data is stored in the
11 buffer. A microprocessor in the wireless device monitors the size of the buffer to
12 ensure that the data contained in the buffer does not fall below the minimum threshold
13 level prior to receiving all of the blocks of data associated with the streamed
14 multimedia file. If the size of the buffer falls beneath the minimum threshold level,
15 the microprocessor signals the wireless telecommunications network to increase the
16 rate that data is transmitted to the device over the wireless telecommunications
17 network until the data contained in the buffer reaches or exceeds the minimum
18 threshold level.

19 In a preferred embodiment of the invention, the user of the device may
20 be billed for the use of the multimedia file prior to streaming the multimedia file to the
21 wireless device. In another preferred embodiment, an authentication code is required
22 to play multimedia files stored in a local memory of the wireless device, which code is

transmitted to the wireless device upon receipt of payment information from the user of the device.

The foregoing specific objects and advantages of the invention are illustrative of those that can be achieved by the present invention and are not intended to be exhaustive or limiting of the possible advantages which can be realized. Thus, these and other objects and advantages of this invention will be apparent from the description herein or can be learned from practicing this invention, both as embodied herein or as modified in view of any variations which may be apparent to those skilled in the art. Accordingly, the present invention resides in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing features and other aspects of the invention are explained in the following description taken in connection with the accompanying drawings wherein:

FIG. 1 is a block diagram of a wireless multimedia communications system in accordance with the present invention; and

FIG. 2 is a block diagram of a portable device for receiving and playing multimedia files over a wireless network in accordance with the present invention.

DETAILED DESCRIPTION

The present invention provides a system, method and portable, wireless device for receiving, playing and storing streamed multimedia files over a wireless

1 telecommunications network from a multimedia server. A preferred embodiment of
2 the present invention is described below with reference to the drawings.

3 FIG. 1 is a block diagram illustrating a preferred wireless multimedia
4 communications system in accordance with the present invention. A multimedia
5 server **10** is connected to a telecommunications network **40** via communications link
6 **20**. High quality, digital multimedia files (*e.g.*, audio, video, data, *etc.*) are stored
7 within or otherwise accessible to the multimedia server **10**. Preferably, the multimedia
8 files are stored within the server **10** in an encoded and compressed file format, such as
9 MP3. The multimedia server **20** may be a conventional third party server accessible
10 over the Internet or a dedicated server maintained by the network provider.

11 While only one server **10** is illustrated in FIG. 1, it is understood that
12 more than one multimedia server **10** may be utilized in accordance with the present
13 invention. For instance, several multimedia servers **10** may be either linked to one
14 another or otherwise connected to the telecommunications network **40** via one or more
15 communications links **20**.

16 The telecommunications network **40** may be a known wireless
17 communications network or a combination of a wireless network interconnected with a
18 conventional land-based telecommunications network, such as the Public Switched
19 Telephone Network ("PSTN"). The wireless network is preferably a high bandwidth
20 network capable of operating at speeds in excess of 144 kbps, such as a wideband
21 Code Division Multiple Access ("CDMA") platform. Other known wireless
22 platforms, such as the Universal Mobile Telecommunications System ("UMTS"),

1 Local Multipoint Distribution System ("LMDS"), Global Systems for Mobile
2 ("GSM") and even satellite-based systems (*e.g.*, the Teledesic network), may be
3 utilized as the wireless network in accordance with the present invention.

4 A portable wireless multimedia device **80**, capable of decoding
5 streamed, compressed data for playback to the user in real time, is connected to the
6 network **40** over a wireless channel **60**. As will be discussed below, the user of the
7 wireless device **80** is able to access the multimedia server **10** over the network **40** to
8 select one or more desired multimedia files stored or otherwise accessible to the server
9 **10**. The selected multimedia files are streamed to the wireless device **80** over link **20**
10 through the network **40** and to the wireless device **80** over wireless channel **60**. The
11 streamed multimedia files are decoded, decompressed and played by the wireless
12 device **80**.

13 A preferred embodiment of the wireless device **80** is illustrated in FIG.
14 2. The wireless device **80** includes a microprocessor or microcontroller **82** for
15 controlling the operation of the wireless device **80**.

16 The wireless device **80** also includes an antenna **96** and a transceiver **94**
17 for transmitting or receiving information over wireless channel **60**. The antenna **96** is
18 connected to the transceiver **94** to facilitate transmission or reception of
19 information/data over the wireless channel **60**. Preferably, a conventional wideband
20 transceiver and antenna are used in the wireless device **80**. The transceiver **94** is
21 connected to the microprocessor **82**.

22 A battery **98**, such as a conventional lightweight lithium-ion

1 rechargeable battery, provides power to the wireless device **80**. Preferably, the battery
2 **98** is electrically connected to each of the various components of the wireless device
3 **80** that require power, either directly or via the microprocessor **82**. The
4 microprocessor **82** may be configured to regulate the power consumption of the
5 various components of the device **80**.

6 The wireless device **80** also includes a data storage memory **90** and a
7 non-volatile memory **92**, each of which is connected to the microprocessor **82**. The
8 data storage memory **90** is the buffer used for streaming and/or the flash memory for
9 storing the multimedia files in the wireless device **80**. Multimedia files stored in the
10 data storage memory **90** may be erased or recorded over. A conventional 8 Mbyte
11 flash memory is suitable for use as the data storage memory **90**. However, if the
12 multimedia file is only being streamed and not stored in the device **80**, then
13 conventional 1, 2 or 4 Mbyte flash memory chips may be used as a buffer for
14 streaming of multimedia files to the wireless device **80**.

15 The non-volatile memory **92** serves as the ROM for the wireless device
16 **80**, permanently storing programmed information (*e.g.*, software for decoding and
17 decompressing the multimedia file) and data for running the microprocessor **82**.

18 The wireless device **80** also includes a visual display **84**, controls **86**
19 and an audio output **88**, each of which are connected to the microprocessor **82**. The
20 visual display **84** is used to display information to the user of the wireless device **80**,
21 such as playing a streamed video data file, displaying selections, operating the device
22 **80**, and providing feedback to the user regarding battery life and connection to the

1 network 40. The display 84 may be a conventional LCD, touch display or LED
2 display.

3 The controls 86 allow the user to operate the wireless device 80 and
4 interface with the microprocessor 82. Various input controls (*e.g.*, buttons, dials, soft
5 keys, jog shuttles, *etc.*) may be used to allow the user to turn power to the device 80 on
6 or off, to select desired multimedia files for streaming and/or downloading, to select
7 user preferences for the device 80, or to scroll through different options.

8 The audio output 88 allows the user of the wireless device 80 to listen
9 to a streamed or downloaded audio data file through one or more audio speakers (not
10 shown) that may be incorporated into the wireless device 80 or otherwise connected
11 through a conventional audio jack (*e.g.*, headphones).

12 In operation, the user turns the power on to the wireless device 80 by
13 selecting the appropriate input control 86. By selecting the appropriate input control
14 86, the user may view different songs, artists, genres, file names, *etc.* through the
15 visual display 84. The user may also view a list of previous files (*e.g.*, songs) and/or
16 links that were previously accessed and stored in the data storage memory 90 of the
17 device 80. Upon making a selection via the appropriate input control 86 and visual
18 display 84, the user may access and listen to and/or view the selected multimedia file
19 previously stored in the data storage memory 90 without establishing a connection to
20 the network 40 over wireless channel 60.

21 In addition, upon making a selection via the appropriate input control
22 86 and visual display 84, the user may alternatively establish a connection to the

1 appropriate, desired multimedia server **10** via the wireless channel **60**, the network **40**
2 and link **20**. Alternatively, the user of the wireless device **80** may select an appropriate
3 input control **86** on the device to establish a connection to a prime multimedia server
4 **10** via the wireless channel **60**, the network **40** and link **20**, which prime media server
5 **10** either stores multimedia files or a list of particular multimedia files and their
6 respective address/location.

7 To connect the wireless device **80** to the multimedia server **10**, the
8 microprocessor **82** instructs the transceiver **94** to make a connection over the wireless
9 network **40** to the multimedia server **10**. As discussed above with respect to FIG. 1,
10 this connection may be made using solely a wireless telecommunications network or a
11 combination of a wireless telecommunications network with the PSTN, Internet and/or
12 similar type of wired telecommunications network.

13 Once connected to the multimedia server **10**, the user of the wireless
14 device **80** may view a list of multimedia files (*e.g.*, audio, video, data, *etc.*) or general
15 categories of such multimedia files (*e.g.*, by artist, genre, *etc.*) on the visual display **84**
16 of the device **80**, which list was communicated to the device **80** by the multimedia
17 server **10** over link **20**, network **40** and wireless channel **60**. Preferably, the list was
18 communicated by the server **10** to the network **40** in a TCP/IP packet format, which
19 list would then be reformatted for transmission over the wireless network in a
20 conventional manner. The reformatted list is received at the transceiver **94**, processed
21 by the microprocessor **82** and displayed on the visual display **84**.

22 The user of the wireless device **80** selects the desired item(s) from the

1 displayed list through use of the appropriate input control **86** and the microprocessor
2 **82** instructs the transceiver **94** to transmit the selection to the multimedia server **10**
3 over the wireless channel **60**, network **40** and link **20**.

4 Upon receipt of the desired selection, the multimedia server **10** then
5 streams the selected multimedia files (*e.g.*, digital MP3 audio files, video data files,
6 *etc.*) back to the wireless device **80** over link **20**, network **40** and wireless channel **60**.
7 The digital multimedia file is preferably transmitted in an encoded and compressed
8 format, such as MP3, to the network **40** in TCP/IP packets, which are reformatted in a
9 conventional manner for transmission over the wireless network and wireless channel
10 **60** to the wireless device **80**.

11 The wireless device **80** receives the transmitted multimedia file at the
12 transceiver **94** and transfers the multimedia file to the microprocessor **82**, which
13 creates a temporary buffer in the data storage memory **90**. The use of a buffer ensures
14 that there is a continuous transmission of data so that the multimedia file (*e.g.*, digital
15 MP3 audio file) sounds of high quality. Once an acceptable buffer is created, the
16 microprocessor **82** converts the data temporarily stored in the buffer to a voltage signal
17 suitable for audio/video output and sends that converted data from the buffer to the
18 audio output **88** (for audio data files) and/or video display **84** (for video data files) for
19 listening/viewing playback to the user of the wireless device **80**.

20 In addition to streaming the multimedia file to the wireless device **80**
21 from the multimedia server **10**, the user may store the file in the data storage memory
22 **90** (flash memory) of the device **80** for playback at a later time from a list of stored

1 files displayed on the visual display **84** and selected through the use of the appropriate
2 input controls **86**.

3 To allow the wireless network provider to serve more subscribers and
4 allow more users to access the system in accordance with the present invention, it is
5 advantageous to conserve bandwidth within the wireless network **40**. One way of
6 accomplishing this is to preferably transmit data at the highest data rate possible over
7 the wireless network **40** at the point in time when the data stream is initiated (*e.g.*, the
8 maximum bandwidth that the wireless network **40** can afford to allocate to a user and
9 the maximum bandwidth the wireless device **80** can accept) to permit the
10 microprocessor **82** of the device **80** to create approximately 5 – 10 seconds of buffer
11 (which may take approximately 1 second). Once an acceptable buffer is created (*e.g.*,
12 approximately 5 – 10 seconds of buffer), the microprocessor **82** will instruct the
13 transceiver **94** to signal the wireless network **40** to decrease the data transmission rate
14 to the minimum rate necessary for adequate transmission—that is, fast enough so that
15 the buffer does not fall below a minimum threshold level (*e.g.*, 2 – 3 seconds of audio)
16 and empty before receiving subsequent streamed data. If the buffer falls beneath this
17 minimum threshold level, then the microprocessor **82** will instruct the transceiver **94** to
18 signal the wireless network **40** to increase the data transmission rate until the minimum
19 threshold level is satisfied, at which point in time the microprocessor **82** will then
20 instruct the transceiver **94** to signal the wireless network **40** to decrease the data
21 transmission rate to the maintain the minimum threshold level in the buffer until all the
22 data is transmitted and the multimedia file (*e.g.*, digital MP3 audio file) has ended.

1 It is understood that a Mobile Identification Number ("MIN") may be
2 used to identify and locate the wireless device **80** within the wireless network **40**. As
3 discussed above, information may preferably be communicated over link **20** from the
4 multimedia server **10** to the wireless network **40** in TCP/IP formatted packets
5 addressed to the MIN assigned to the wireless device **80**. The wireless network **40**
6 preferably reformats the packets sent by the server **10** into an appropriate format for
7 the wireless network **40**. Because the wireless device **80** registers with the wireless
8 network **40** in a conventional manner, the wireless network **40** identifies the
9 approximate location of the wireless device **80** and transmits the reformatted data to
10 the base station (not shown) within the wireless network **40** where the device **80** is
11 currently registered. The reformatted data is then transmitted from the base station to
12 the device **80** over wireless channel **60**.

13 The present invention is particularly well-suited to address and alleviate
14 the entertainment industry's concern over unauthorized copying, reproduction or
15 distribution of copyrighted works contained in the multimedia files. To avoid this
16 concern, the preferred embodiment of the present invention provides the ability to
17 stream the multimedia file from the multimedia server **10** to the wireless device **80**
18 over network **40** for temporary storage in a buffer in the data storage memory **90** of the
19 device **80**. In this manner, the streamed multimedia file may be played once in real
20 time on the wireless device **80**, rather than requiring the multimedia file to be stored in
21 the device **80** for subsequent use. The user of the device **80** may be billed for each
22 time the multimedia file is streamed to the device **80**.

1 In a preferred embodiment of the invention, the user of the wireless
2 device **80** may be billed prior to transmitting the multimedia file to the device. To
3 start, a connection to a multimedia server **10** is established over the network **40** in a
4 manner as discussed above. Then, a desired multimedia file is selected for listening
5 and/or viewing by the user of the wireless device **80**, also in a manner as discussed
6 above. Next, a secure financial transaction is conducted by first determining the user's
7 account (*i.e.*, a cellular phone bill, credit card account, *etc.*), then debiting the account
8 a specific amount for the use of the multimedia file, and finally confirming that the
9 transaction has been approved. The specific details associated with this billing will be
10 predetermined by the service provider, likely in a manner consistent with already
11 established practices. Once the user of the wireless device **80** has been properly
12 charged, the selected multimedia file is streamed to the wireless device **80** by the
13 multimedia server **10** over the wireless network **40** in a manner as described above.

14 Alternatively, in another preferred embodiment, the multimedia server
15 **10** may first transmit the multimedia file to the wireless device **80** over network **40** and
16 store the file locally in memory **90** of the device **80**. An authentication code to be sent
17 by the multimedia server **10** over the wireless network **40** to the wireless device **80**
18 would be required when the user desires to play the multimedia file on the device **80**.
19 One benefit of this approach is that the multimedia file only needs to be transmitted
20 once for multiple playback, reducing airtime costs. Since the authentication code must
21 be used to play the multimedia file on the wireless device **80**, the ability to bill the user

1 of the device **80** each time the multimedia file is played on the device **80** by the user is
2 ensured.

3 More specifically, in this preferred embodiment of the invention, the
4 user of the wireless device **80** is billed for the replay of multimedia files already
5 received and stored at the device **80**. In this case, the desired multimedia file is
6 downloaded from the multimedia server **10** in a manner as discussed above and stored
7 locally in memory **90** of the device **80**. Once the user of the device **80** chooses to play
8 (*e.g.*, listen and/or view) the multimedia file, a connection is established between the
9 wireless device **80** and the multimedia server **10** over the network **40** to authenticate
10 the user and record the billing information in a manner predetermined by the provider
11 of the service. Once completed, an authentication code is transmitted by the
12 multimedia server **10** over the network **40** to the wireless device **80**, which code is
13 used as a key to allow the stored multimedia file to be played on the wireless device
14 **80**. Without the code, the stored multimedia file is unable to be played by the wireless
15 device **80**.

16 Although an illustrative preferred embodiment has been described
17 herein in detail, it should be noted and will be appreciated by those skilled in the art
18 that numerous variations may be made within the scope of this invention without
19 departing from the principle of this invention and without sacrificing its chief
20 advantages. The terms and expressions have been used herein as terms of description
21 and not terms of limitation. There is no intention to use the terms or expressions to
22 exclude any equivalents of features shown and described or portions thereof and this

- 1 invention should be defined in accordance with the claims that follow.

65000 "K5E9360

CLAIMS**WE CLAIM:**

1. A device for receiving and playing a multimedia file from a multimedia server over a wireless telecommunications network, comprising:

a microprocessor for controlling the operation of the device;

a transceiver operatively connected to the microprocessor for receiving successive blocks of data from the streamed multimedia file over the wireless telecommunications network;

a buffer operatively connected to the microprocessor for temporarily storing the received blocks of data from the streamed multimedia file; and

an output operatively connected to the microprocessor for playing the successive blocks of data from the streamed multimedia file.

2. The device according to claim 1, wherein the blocks of the multimedia file are received in a digitized and compressed format.

3. The device according to claim 2, wherein the microprocessor is programmed to decode and decompress the blocks of data prior to playing through the output.

4. The device according to claim 3, further comprising a non-volatile memory operatively connected to the microprocessor for storing the decoding and decompression program.

5. The device according to claim 1, further comprising a memory operatively connected to the microprocessor for storing the received blocks of data

1 from the multimedia file for subsequent playback through the output.

2 6. The device according to claim 5, further comprising a visual
3 display operatively connected to the microprocessor for displaying a list of multimedia
4 files stored in the memory.

5 7. The device according to claim 5, further comprising a user
6 control panel operatively connected to a microprocessor to signal the microprocessor
7 to play the blocks of data from the multimedia file that are stored in the memory.

8 8. The device according to claim 1, wherein the multimedia file is
9 a digital audio file.

10 9. The device according to claim 1, wherein the multimedia file is
11 a digital video file.

12 10. The device according to claim 1, wherein the output is an audio
13 speaker.

14 11. The device according to claim 1, wherein the output is a
15 receptacle for operatively connecting the device to an audio speaker.

16 12. The device according to claim 1, wherein the output is a visual
17 display.

18 13. The device according to claim 1, wherein the blocks of data are
19 received from the wireless telecommunications network at a first transmission rate
20 until a minimum threshold level of data is stored in the buffer and at a second
21 transmission rate after the minimum threshold level of data is stored in the buffer,
22 wherein the first transmission rate is higher than the second transmission rate when the

1 minimum threshold level of data is stored in the buffer.

2 14. The device according to claim 1, wherein the microprocessor
3 monitors the size of the buffer to ensure that the data contained in the buffer does not
4 fall below the minimum threshold level prior to receiving all of the blocks of data
5 associated with the multimedia file.

6 15. The device according to claim 14, wherein the microprocessor
7 signals the wireless telecommunications network to adjust the data transmission rate
8 that data to the device based upon the size of the buffer.

9 16. The device according to claim 14, wherein the microprocessor
10 signals the wireless telecommunications network to increase the data transmission rate
11 to the device when the size of the buffer falls beneath the minimum threshold level.

12 17. The device according to claim 1, wherein the device is portable
13 and comprises a battery for powering the device.

14 18. The device according to claim 1, wherein the device is adapted
15 to transmit payment information over the wireless network to the multimedia server
16 before the multimedia file is streamed to the device.

17 19. The device according to claim 1, wherein a user of the device is
18 billed each time a multimedia file is streamed to the device.

19 20. A system for streaming a multimedia file over a wireless
20 telecommunications network to a wireless device, comprising:

21 a multimedia server operatively connected to the wireless
22 telecommunications network, the multimedia server including a database for storing

1 the multimedia file and adapted to stream successive blocks of data from the
2 multimedia file over the wireless telecommunications network in a digitized and
3 compressed format; and

4 a wireless device operatively connected to the wireless
5 telecommunications network for receiving and playing the streamed multimedia file,
6 the wireless device comprising:

7 a microprocessor for controlling the operation of the wireless device;

8 a transceiver operatively connected to the microprocessor for receiving
9 the successive blocks of data streamed over the wireless telecommunications network;

10 a buffer operatively connected to the microprocessor for temporarily
11 storing the received blocks of data from the streamed multimedia file; and

12 an output operatively connected to the microprocessor for playing the
13 successive blocks of data from the streamed multimedia file, wherein the
14 microprocessor is programmed to decode and decompress the blocks of data prior to
15 playing through the output.

16 21. The system according to claim 20, wherein the wireless device
17 further comprises a non-volatile memory operatively connected to the microprocessor
18 for storing the decoding and decompression program.

19 22. The system according to claim 20, wherein the wireless device
20 further comprises a memory operatively connected to the microprocessor for storing
21 the received blocks of data from the multimedia file for subsequent playback through
22 the output.

1 23. The system according to claim 22, wherein the wireless device
2 further comprises a visual display operatively connected to the microprocessor for
3 displaying a list of multimedia files stored in the memory.

4 24. The system according to claim 22, wherein the wireless device
5 further comprises a user control panel operatively connected to the microprocessor to
6 signal the microprocessor to play the blocks of data from the multimedia file that are
7 stored in the memory.

8 25. The system according to claim 20, wherein the multimedia file
9 is a digital audio file.

10 26. The system according to claim 20, wherein the multimedia file
11 is a digital video file.

12 27. The system according to claim 20, wherein the output is an
13 audio speaker.

14 28. The system according to claim 20, wherein the output is a
15 receptacle for operatively connecting the device to an audio speaker.

16 29. The system according to claim 20, wherein the output is a visual
17 display.

18 30. The system according to claim 20, wherein the blocks of data
19 are received from the wireless telecommunications network at a first transmission rate
20 until a minimum threshold level of data is stored in the buffer and at a second
21 transmission rate after the minimum threshold level of data is stored in the buffer, the
22 first transmission rate being higher than the second transmission rate when at least the

1 minimum threshold level of data is stored in the buffer.

2 31. The system according to claim 20, wherein the microprocessor
3 monitors the size of the buffer to ensure that data contained in the buffer does not fall
4 below a minimum threshold level prior to receiving all of the blocks of data associated
5 with the multimedia file.

6 32. The system according to claim 31, wherein the microprocessor
7 signals the wireless telecommunications network to adjust the rate that data is
8 transmitted to the wireless device based upon the size of the buffer.

9 33. The system according to claim 31, wherein the microprocessor
10 signals the wireless telecommunications network to increase the rate that data is
11 transmitted to the wireless device when the size of the buffer falls beneath the
12 minimum threshold level.

13 34. The system according to claim 20, wherein the wireless device
14 is portable and comprises a battery for powering the device.

15 35. The system according to claim 20, wherein the multimedia
16 server is operatively connected to the wireless telecommunications network via the
17 public switched telephone network.

18 36. The system according to claim 20, wherein the multimedia
19 server is operatively connected to the wireless telecommunications network via the
20 Internet.

21 37. The system according to claim 20, wherein payment
22 information is communicated to the multimedia server prior to streaming the

multimedia file to the wireless device.

38. The system according to claim 20, wherein a user of the device is billed each time a multimedia file is streamed to the device.

39. The system according to claim 22, wherein an authentication code must be received by the wireless device prior to playback of the received blocks of data from the multimedia file stored in the memory.

40. The system according to claim 39, wherein the authentication code is transmitted by the multimedia server over the wireless network to the wireless device.

41. A method for streaming a multimedia file over a wireless telecommunications network to a wireless device, comprising:

storing one or more multimedia files in a multimedia server operatively connected to the wireless telecommunications network;

selecting a desired multimedia file;

streaming successive blocks of data from the desired multimedia file over the wireless telecommunications network in a digitized and compressed format;

receiving the successive blocks of data streamed over the wireless telecommunications network at a wireless device;

temporarily storing the received blocks of data from the streamed multimedia file in a buffer in the wireless device;

decoding and decompressing the blocks of data temporarily stored in the buffer;

1 successively playing the decoded and decompressed blocks of data
2 from the streamed multimedia file through an output in the wireless device.

3 42. The method according to claim 41, wherein the blocks of data
4 are received from the wireless telecommunications network at a first transmission rate
5 until a minimum threshold level of data is stored in the buffer and at a second
6 transmission rate after the minimum threshold level of data is stored in the buffer, the
7 first transmission rate being higher than the second transmission rate when at least the
8 minimum threshold level of data is stored in the buffer.

9 43. The method according to claim 42, further comprising the step
10 of monitoring the size of the buffer to ensure that the data contained in the buffer does
11 not fall below the minimum threshold level prior to receiving all of the blocks of data
12 associated with the streamed multimedia file.

13 44. The method according to claim 43, further comprising the step
14 of adjusting the rate that data is transmitted to the wireless device over the wireless
15 telecommunications network based upon the size of the buffer.

16 45. The method according to claim 43, further comprising the step
17 of increasing the rate that data is transmitted to the device over the wireless
18 telecommunications network when the size of the buffer falls beneath the minimum
19 threshold level.

20 46. The method according to claim 41, further comprising the step
21 of storing the received blocks of data in a memory of the wireless device for
22 subsequent playback through the output.

1 47. The method according to claim 46, further comprising the step
2 of displaying a list of multimedia files stored in the memory of the wireless device and
3 selecting a multimedia file stored in the memory for playback through the output of the
4 wireless device.

5 48. The method according to claim 41, wherein the multimedia file
6 is a digital audio file.

7 49. The method according to claim 41, wherein the multimedia file
8 is a digital video file.

9 50. The method according to claim 41, wherein the output is an
10 audio speaker.

11 51. The method according to claim 41, wherein the output is a
12 receptacle for operatively connecting the device to an audio speaker.

13 52. The method according to claim 41, wherein the output is a
14 visual display.

15 53. The method according to claim 41, wherein the multimedia
16 server is operatively connected to the wireless telecommunications network via the
17 public switched telephone network.

18 54. The method according to claim 41, wherein the multimedia
19 server is operatively connected to the wireless telecommunications network via the
20 Internet.

21 55. The method according to claim 41, further comprising the step
22 of providing the multimedia server with payment information before the desired

1 multimedia file is streamed to the wireless device.

2 56. The method according to claim 41, further comprising the step
3 of communicating payment information to the multimedia server prior to streaming the
4 multimedia file to the wireless device.

5 57. The method according to claim 41, further comprising the step
6 of billing a user of the device each time a multimedia file is streamed to the device.

7 58. The method according to claim 57, further comprising the steps
8 of:

9 identifying an account associated with the user of the device; and
10 debiting the account a predetermined amount for use of the multimedia
11 file.

12 59. The method according to claim 46, further comprising the step
13 of providing the wireless device with an authentication code prior to playback of the
14 received blocks of data from the multimedia file stored in the memory.

15 60. The method according to claim 59, wherein the authentication
16 code is transmitted to the wireless device upon receipt of payment information from a
17 user of the device.

18 61. The method according to claim 59, wherein the authentication
19 code is transmitted by the multimedia server over the wireless network to the wireless
20 device.

21 62. The method according to claim 61, wherein, prior to
22 transmitting the authentication code to the wireless device, an account associated with

- 1 a user of the device is identified and debited a predetermined amount for use of the
- 2 multimedia file.

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ABSTRACT OF THE DISCLOSURE

A wireless device, system and method for receiving and playing multimedia files streamed from a multimedia server over a wireless telecommunications network. A desired multimedia file is selected from one or more multimedia files stored in the multimedia server, which server is operatively connected to the wireless telecommunications network. Successive blocks of data from the desired multimedia file are streamed over the wireless telecommunications network in a digitized and compressed format and received by the wireless telecommunications device. The received blocks of data from the streamed multimedia file are temporarily stored in a buffer in the wireless device, decoded and decompressed, and successively played through an audio and/or video output in the wireless device. The wireless device monitors the blocks of data stored in the buffer and signals the wireless telecommunications network to increase the rate that the data blocks are transmitted over the wireless network in the event that the data stored in the buffer falls below a minimum threshold level.

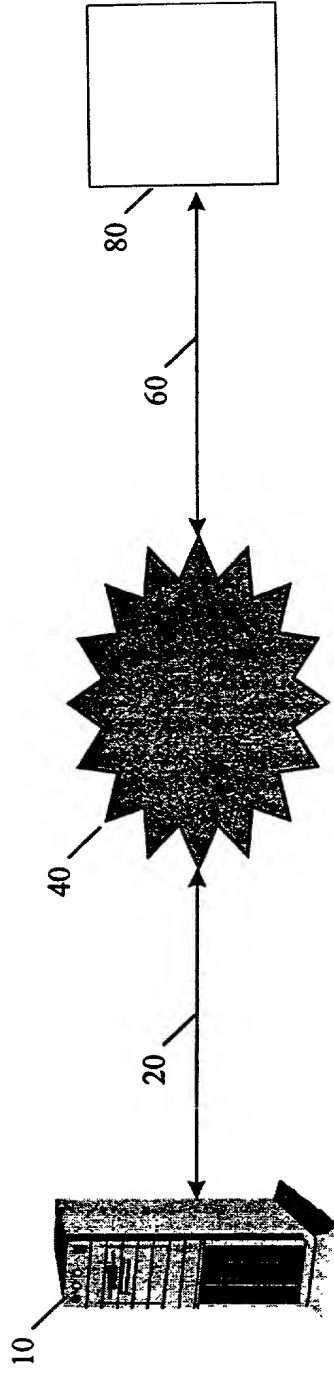


Fig. 1

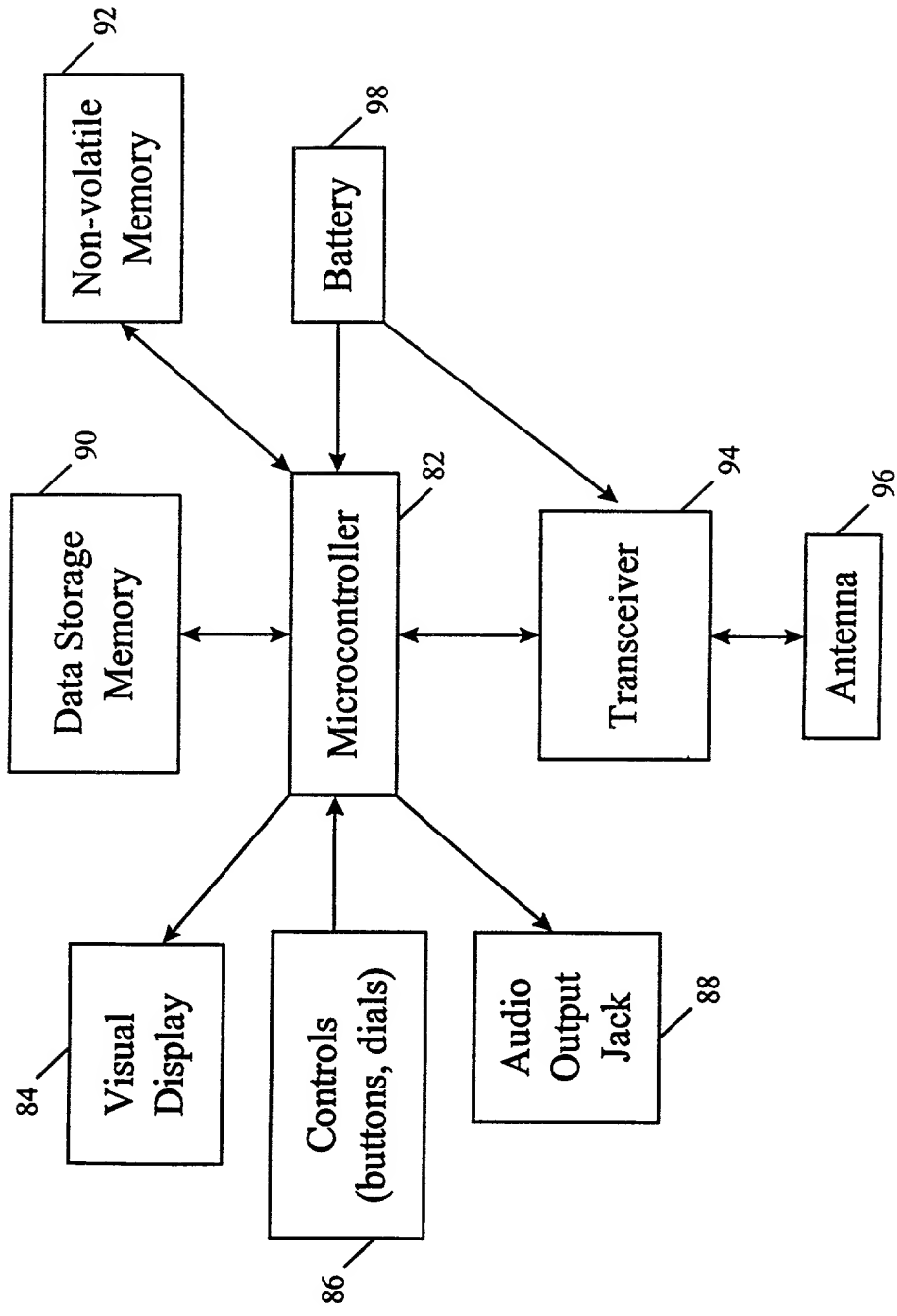


Fig. 2

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Declaration and Power of Attorney

As the below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **WIRELESS MULTIMEDIA PLAYER** the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by an amendment, if any, specifically referred to in this oath or declaration.

I acknowledge the duty to disclose all information known to me which is material to patentability as defined in Title 37, Code of Federal Regulations, 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

None

I hereby claim the benefit under Title 35, United States Code, 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

None

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

0936331 080299

I hereby appoint the following attorney(s) with full power of substitution and revocation, to prosecute said application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith:

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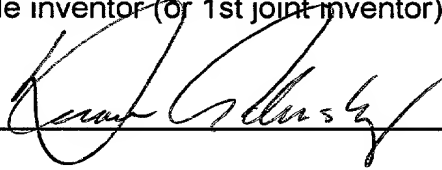
Eli Weiss

(Reg. No. 17765)

I hereby appoint the attorney(s) on ATTACHMENT A as associate attorney(s) in the aforementioned application, with full power solely to prosecute said application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected with the prosecution of said application. No other powers are granted to such associate attorney(s) and such associate attorney(s) are specifically denied any power of substitution or revocation.

Full name of sole inventor (or 1st joint inventor): **Duane Galensky**

Inventor's
signature



Date 7/20/99

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Inventor's
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